



FUKUSHIMA - 10 years later




Where are we today in Fukushima Prefecture compared to immediately after the accident?

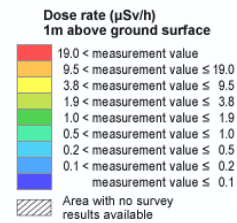
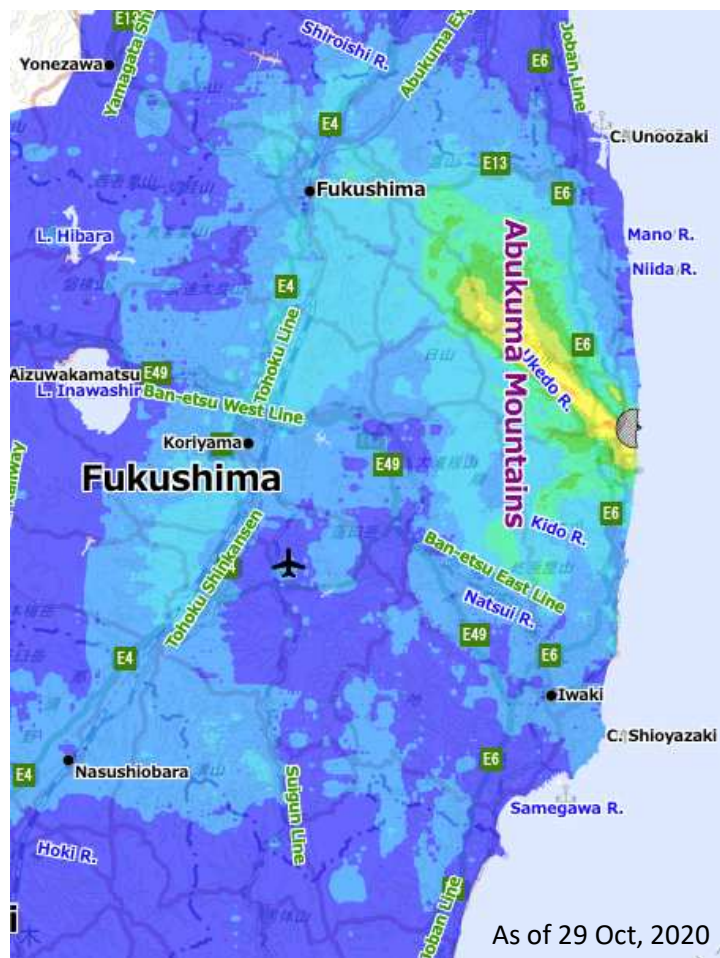
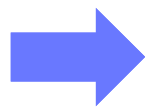
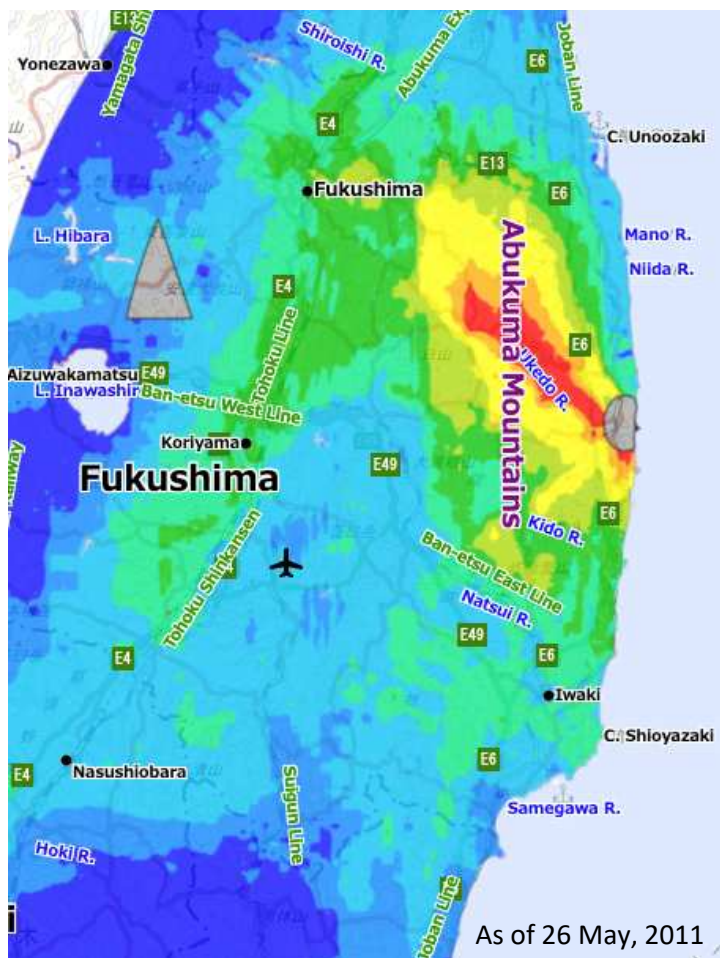


Oct 12nd, 2021 online

Hiroko Yoshida JHPS, Tohoku Univ.

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- ✓ Changes in Fukushima Prefecture immediately after the accident and now 10 years later
 - Air radiation dose, the Evacuation-designated Zone,
 - Evacuee numbers and the number of residents returning and living
 - ✓ Current status in Okuma Town
 - Role of the Decontamination Verification Committee toward lifting the evacuation order in the SRRB
 - ✓ Domestic and international concerns over ALPS treated water and JHPS's activities to cope with the issue

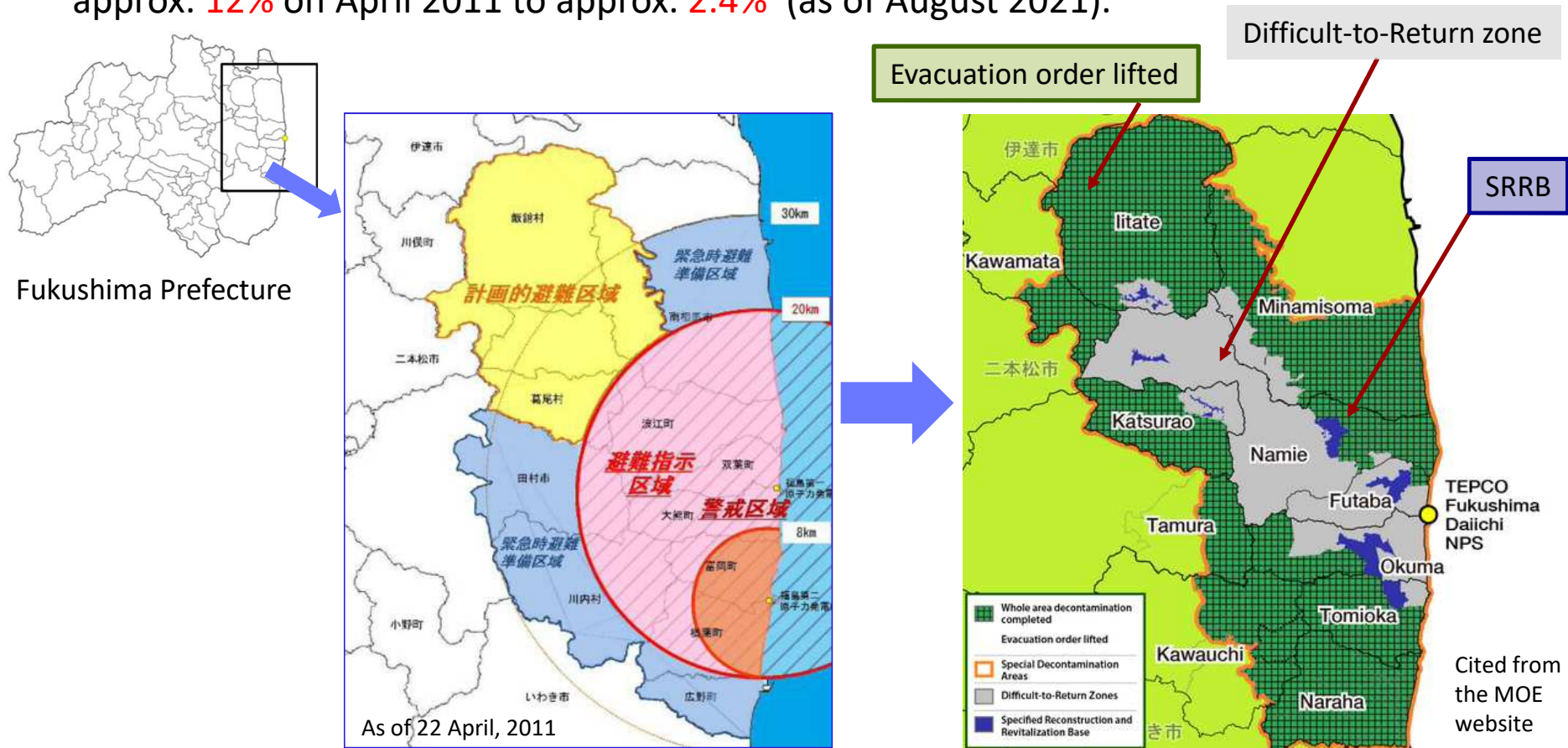
Air radiation dose in Fukushima Prefecture



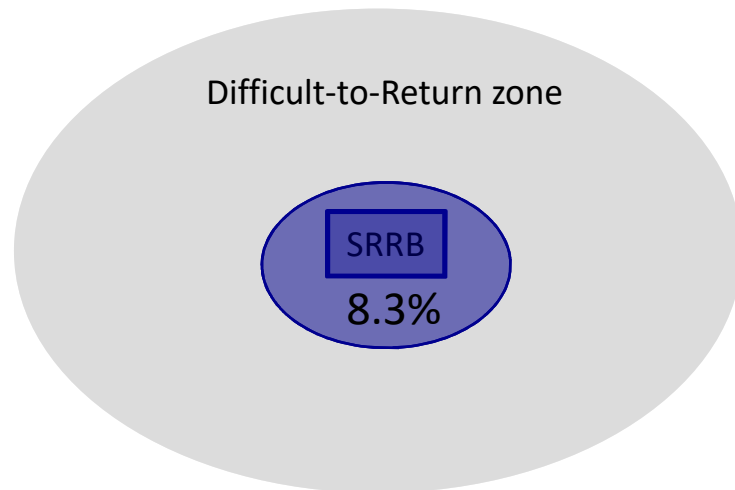
Cited from the NRA website

Current status of the Evacuation-designated Zone

The proportion of the area of the prefecture under evacuation orders has reduced from approx. **12%** on April 2011 to approx. **2.4%** (as of August 2021).



Specified Reconstruction and Revitalization Base, SRRB



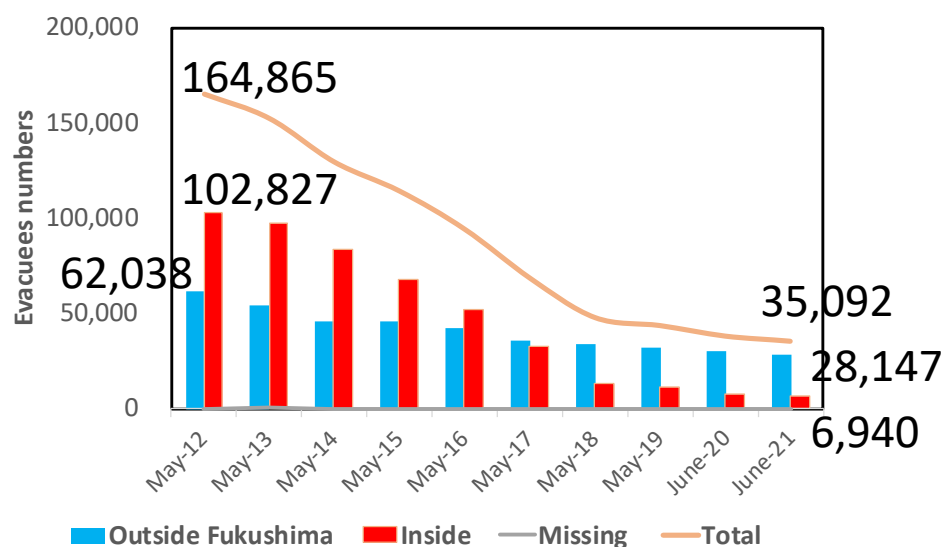
- ✓ SRRB: zones among areas where returning is difficult for which evacuation orders are lifted and where people are allowed to reside.
- ✓ Since 2017, the SRRB has been in six municipalities (Futaba, Okuma, Namie, Tomioka, Iitate and Katsurao).
- ✓ The SRRB accounts for approx. 8.3% of the Difficult-to-return Zone.
- ✓ Demolition of houses and decontamination work have started. In public facilities such as station square, nurseries, and gymnasium, demolition and decontamination work had been completed until Aug 2020.



Cited from 'Off-Site Environmental Remediation in Affected Areas In Japan'

Change in evacuee numbers and the number of residents returning and living

With the lifting of the evacuation orders, the number of residents returning and living in the areas is gradually increasing.



Change in evacuee numbers (residents of Fukushima prefecture)

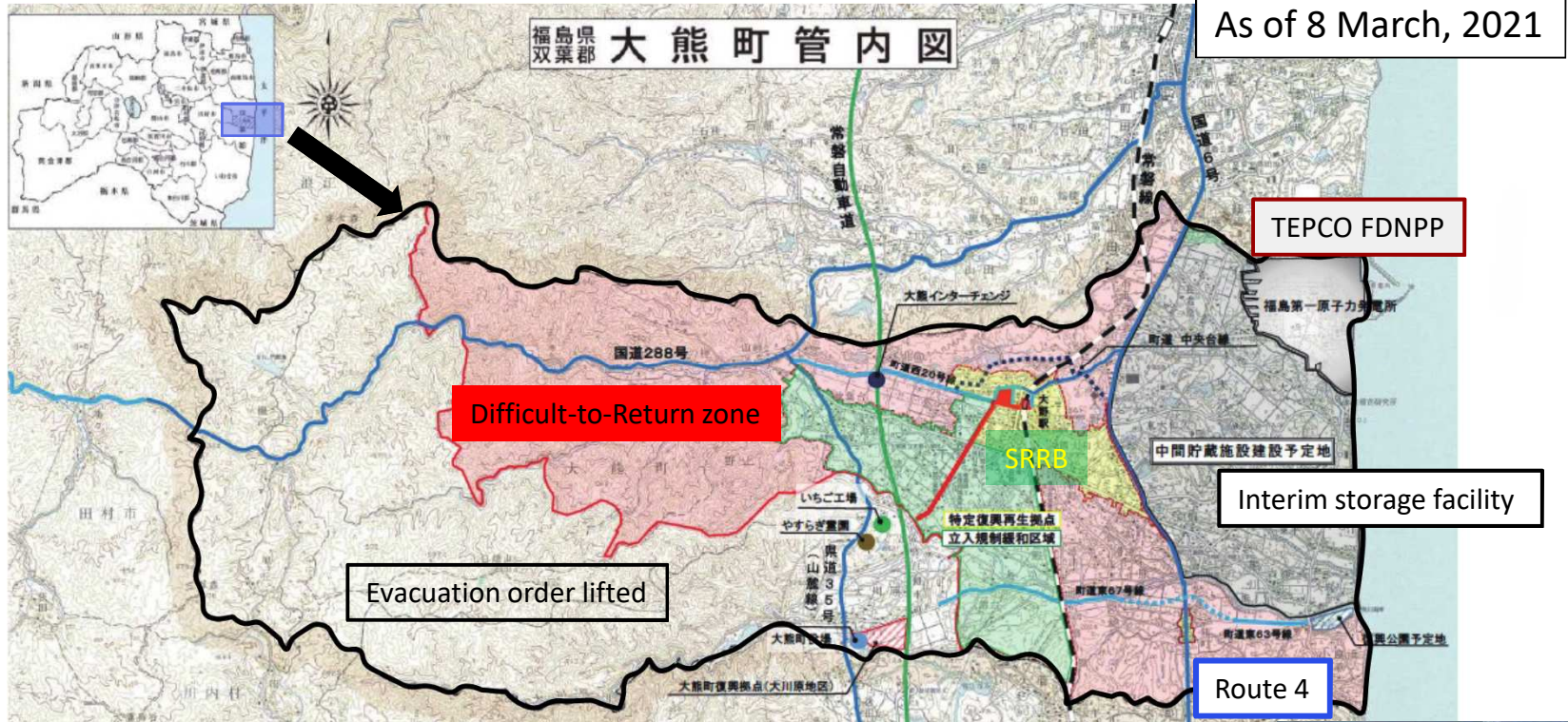
Evacuee numbers are from statistics of Reconstruction Agency

Status of residence in 12 municipalities in the affected areas (As of June 2021)

Hirono Town	90.2%	No evacuation order issued
Tamura City (Miyakoji District)	85.0%	Lifted in 2014, all area
Naraha Town	60.7%	Lifted in 2015, all area
Kawauchi Village	82.1%	Lifted in 2016, all area
Katsurao Village	32.0%	Lifted in 2016
Minamisoma City (Odaka District)	57.1%	
Kawamata Town (Yamakiya District)	47.5%	Lifted in 2017, all area
Namie Town	10.2%	Lifted in 2017
Iitate Village	29.0%	
Tomioka Town	14.0%	
Okuma Town	3.3%	Lifted in 2019
Futaba Town	-	Lifted in 2020

Evacuation orders for all areas except for areas where Returning is Difficult have been lifted by March 2017.

Current status in Okuma Town



The lifting of evacuation orders in the SRRB is being considered for next spring in Okuma Town.

JR East's Joban Line, resumed full service on 14 Mar 2020.



Decontamination Verification Committee in Okuma Town

Okuma Town website



2050 ゼロカーボン宣言
こちらをクリック

ホーム 震災関連 暮らし・手 健康・福祉 子育て・教育 しこ
続き 育

ホーム > 分類でさがす > 震災関連 > 放射線・除染 > 除染 > 令和2年度 大熊町除染検証委員会

令和2年度 大熊町除染検証委員会

印刷用ページを表示する 掲載日：2021年4月9日

第2回大熊町除染検証委員会を開催しました

The committee consists of seven members: five experts with different areas of expertise such as radiation protection, radiation measurement, environment, biology, etc., a town councilor, and the mayor of the ward.

- ✓ The committee consults for local authorities to collect and examine the information on decontamination projects and to analyze and verify whether radiation levels have been effectively reduced in the SRRB from professional and local perspectives.
- ✓ At its most recent meeting on Oct 2021, the committee visited the field in the SRRB.
- ✓ Even after removing of topsoil, the radiation dose in forests and slopes has not been reduced sufficiently ($> 3.8 \mu\text{Sv/h}$). Installation of sandbags and soil blasting are being tested.
- ✓ Reference levels are actually used as action levels. Misunderstanding of the figures of $0.23 \mu\text{Sv/h}$ and $3.8 \mu\text{Sv/h}$.



Various situations of residents in Okuma Town

Area where Evacuation order has been lifted.

Number of people living in the town is 353 as of Oct 2021.

Resident in his 80s

Air dose rate; outside 0.2-0.3 $\mu\text{Sv/h}$, inside 0.2 $\mu\text{Sv/h}$
After the accident, he built a new house in Iwaki City, but he return Okuma Town almost every day. He enjoys growing vegetables in the garden. This summer, corn grew very well. He is worried that there are some areas of his house with elevated radiation levels.



SRRB (Decontamination has not been done yet)

Resident in his 60s, Committee member

Air dose rate; outside 1.4-2.4 $\mu\text{Sv/h}$, inside 0.5-1.1 $\mu\text{Sv/h}$

He plans to return to his home after the evacuation order is lifted. He is not worried about the radiation level because it will go down after decontamination.

Only a few residents will be returning, he is the only one in the vicinity who will return. It should not be called a town where people live.



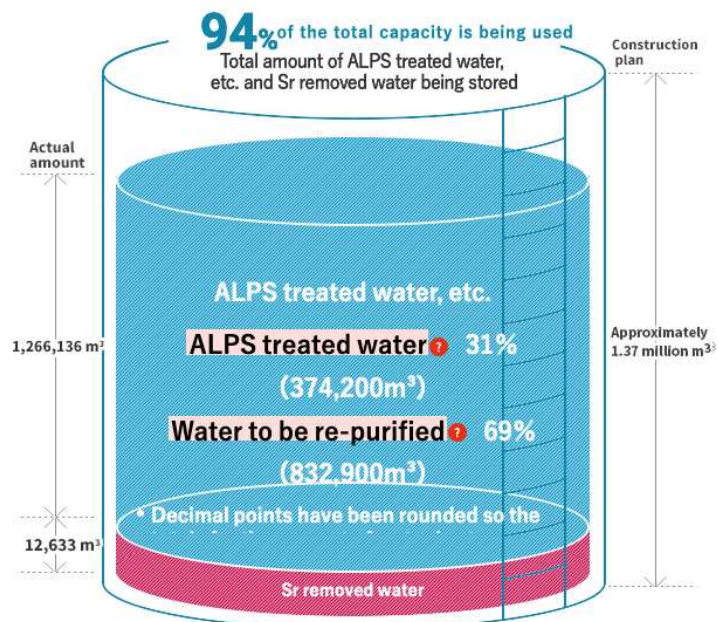
From dialogues with residents in Okuma Town



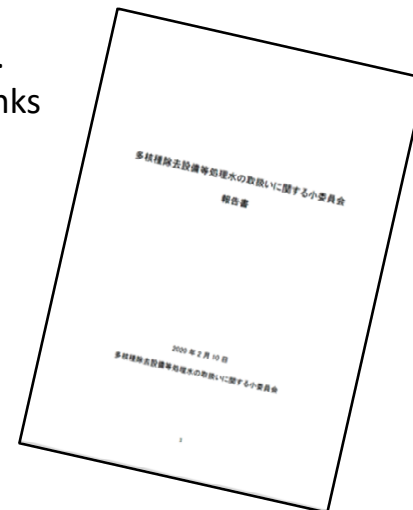
- ✓ Complete decontamination is not feasible. Now it is well known that restoration (to the previous state) is impossible.
- ✓ Restoring the lives and livelihoods damaged by the nuclear accident is not something that can be solved by science alone. Radiation protection is not an isolated issue, but part of a big picture of people, their lives, and society.
- ✓ Residents need continuous monitoring, measurements, and other scientific data.
- ✓ It is not that the data is necessary for science, but that it is necessary for local governments and residents to obtain or regain a high quality of human life.
- ✓ The most important thing is to gain or regain a high quality of human life itself.
- ✓ Sufficient skills and knowledge need to be provided so that residents can make decisions on information.
- ✓ It is important to have repeated dialogues with residents and stakeholders at all levels.
- ✓ Various approaches are being taken, such as Q&A on the Internet, guidance, dialogues, and activities in each district, but more needs to be done in response to the changing situation in the process of recovery.

Current status of ALPS treated water

ALPS treated water generate 170m³ daily. Treated water storage tank is expected to reach the planned full capacity by the summer of 2022. Note : ALPS treated water refers to water that has been purified in several purification facilities, including the Advanced Liquid Processing System (ALPS). Treated water is different from contaminated water.



Amount of ALPS treated water, etc. and Sr removed water stored in tanks (as of Sep 30, 2021)
Cited from TEPCO website



The subcommittee on Handling of ALPS Treated Water, established by the Ministry of Economy, Trade and Industry, published the report on February 10, 2020.

Discharge into the sea and vapor release were proposed as practical options for handling the ALPS treated water. The experiences with conventional reactors, the ease of handling, and the way of monitoring make discharge into the sea more reliable than vapor release. On April 13, 2021, the 5th Ministerial Conference on Decommissioning, Contaminated Water, and Treated Water Measures was held to decide on the basic policy for the disposal of ALPS treated water, and chose to release it into the ocean. Two years later, ALPS treated water will be released into the ocean.

合意なき海洋放出

Decision on ocean discharge without consensus

海洋
県町

Harmful rumors

「以外も検討を要望
風評被害容認できぬ」

東電・国に不信風評の元
Distrust of TEPCO and the government



韓国 の 文 在 寅 政 権 が 猛 反 発
South Korea's Moon Jae-in Administration Fiercely Opposes



海洋放出反発 韓国

Outcry over ocean discharge

世論に配慮し日本に抗議 提

東の水産物すべてを農産物27品目の輸入に制限する。在韓日本は、昨秋から館員総出で府、国会議員、経済スコミ関係者らに安全性を繰り返し訴え、大統領府にも理解がたとの感觸を得ている。韓国海洋水産省が、月に作成した内部文書の日本への処理水の処分について、「IAEA(原子力機関)が科学的に妥当性があるとしている」と記載。辺海域のモニタリングの必要性に言及した。韓国政府として危険性には触れていない。だが、日本政府の放出決定が近く、国メディアは強く反

회와 주민들이 지난달 18일 한수원(주)에서 더불어민주당 의원들이 탄 버스를 크게 논란이 되고 있는 삼중수소 누출 논란 전에 나온 자료를 마치 방금 나온 핵 정치를 즉각 중단할 것"을 촉구했다.

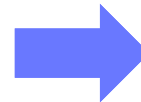
Major import restrictions on marine products, agricultural products, and foodstuffs from Japan

- ✓ South Korea tightened import restrictions on Japanese marine products in 2013.

Expansion of import ban on marine products from the eight affected prefectures

Previously prohibited import items

従前の輸入禁止品目		
福島県	イカナゴ、マダラ、ヤマメ等49種	Fukushima
茨城県	ニベ、マダラ、ウナギ等10種	Ibaraki
群馬県	ヤマメ等2種	Gunma
宮城県	スズキ、マダラ等9種	Miyagi
岩手県	スズキ、マダラ等6種	Iwate
栃木県	ウグイ等3種	Tochigi
千葉県	フナ、コイ2種	Chiba
青森県	マダラ1種	Aomori



Imports of all marine products were banned.



Cited from Fisheries Agency website

- ✓ Taiwan has suspended imports of all food products (except alcoholic beverages) from the five prefectures (Fukushima, Ibaraki, Gunma, Tochigi, Chiba) since May 2015.
- ✓ China has imposed a suspension on imports of all food products, feed, etc. exported from Japan, from the 10 prefectures (Fukushima, Miyagi, Ibaraki, Tochigi, Gunma, Saitama, Chiba, Tokyo, Nagano, Niigata), since Nov 2018. (excluding rice from Niigata Prefecture)

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- **JHPS International Symposium on Tritiated Water Issues , June 2020**
 - **Fukushima 10 Years, Special Workshop of KARP and JHPS, March 2021**
 - **Current status of Fukushima Daiichi decommissioning project, treated water, and future collaboration among RP experts – JHPS and KARP, June 2021**
 - **Joint KARP-JHPS-CSRJ Workshop on "Perspectives of Young Radiation Protection Professionals through Some Issues Related to the Fukushima Accident", Aug 2021**



AOARP



AOARP
Asian and Oceanic Association
for Radiation Protection

Asian and Oceanic Association for Radiation Protection (AOARP)

*International Voice of Radiation Protection in Asia and Oceania
in line with the IRPA Vision for 2020*



seven Associate Societies
(Australia, China, India,
Japan, Korea, Malaysia, and
Philippine)



JHPS International Symposium on Tritiated Water Issues

International symposium: How do we find the solution to radiological protection of tritium water?

~ International and Societal Perspectives on Radiation Protection

held as a live symposium on the web on Jun 29, 2020

Part I : Lectures Chair : Michiaki Kai (Oita UNHS)

1: Ichiro Yamaguchi (NIPH)

2: Shu-Jun Chang (Institute of Nuclear Energy Research, Taiwan)

3: Ik Jae Chung (Seoul National University of Science and Technology)

4: Riken Komatsu (Community Activists, writer, Iwaki city)

5: Motofumi Kikuchi (fisherman, Soma city) Pre-interview

Designated speaker :Ryoko Ando (NPO Fukushima Dialogue/ Ethos in Fukushima, Iwaki city)

Part II : Live discussion Facilitator: Hiroko Yoshida (Tohoku Univ)

Rapporteur : Isao Kawaguchi (QST)

Live discussion on "Scientific Safety of Tritiated Water" and "Social Consensus Building"



Interview with Mr. Motofumi Kikuchi (Fisherman, Soma Haragama Fishing Port)

(Interviewer: Hiroko Yoshida)

- ✓ The majority of the public does not understand the safety of tritium, and as a fisherman, I am very concerned about rumor-based reputational damage. We feel that the safety of the product has not been communicated to the public.
- ✓ As for the issue of contaminated treated water, It would be humane for the side that polluted the fishermen's workplace to stand by and support the fishermen who are doing their best. Compensation will not solve any problems.
- ✓ This is not a problem only for the fishermen, not just for Fukushima or the region. I want you to think of it as your own, not someone else's.
- ✓ In fishing, the harder you work, the more you get paid. I have always felt that this is the true joy of fishing. However, the Fukushima Daiichi Nuclear Power Plant accident occurred and the fishery is currently on trial operation. I hope the government work hard to restore the culture and appeal of fishermen.
- ✓ I would like to see the government support the restoration of brand value, processed products, and the creation of an industry that makes use of local resources.



Part II : Live discussion

(Facilitator: Hiroko
Yoshida)

“How can we exactly gain confidence in the scientific safety of tritiated water at home and abroad?. What is expected to be done and by whom? What is expected to be improved by it?”

Dr. Yamaguchi: The problem is credibility, and what the experts can do is to answer the questions.

Dr. Chang: The issue of tritiated water is about safety, and meeting the standards ensures safety. The differences between the Taiwanese and Japanese standards, risk assessment, and especially the realistic impact on the marine environment, should be assessed and the information should be disclosed to Taiwan.

Dr. Chung: How safe is enough safe? is always a challenge. Scientific knowledge and scientific research data are important, but this is merely the bottom line. Emphasizing zero risk (safety) does not offer any possibilities. It is necessary to make a space for discussion through negotiations. It should start with very specific negotiations, for example, economic incentives, and the rhetoric for social consensus is required. Consideration of acceptable and unacceptable matters is the first step, and moving to concrete considerations, such as what is necessary and what can be provided, is the next step. It is necessary to negotiate incrementally, rather than explaining that there is no risk. Much of the information is disseminated by the mass media and has a significant impact on public decision-making. It is important for scientists to explain scientific information in a way that the public can understand.

Part II : Live discussion



on "Scientific Safety of Tritiated Water"

Mr.Komatsu: Scientists should solemnly and firmly publish information based on the data. However, most consumers do not understand and act on the scientific findings about tritium. Sometimes it's because someone told them (it's safe). Cooperation of scientists and senders of information is important so that senders of information, including the media, can disseminate information based on understanding of the character and effects of tritium. In some cases, scientists lack persuasiveness when they explain things in a simple and understandable way. So, scientists need communicators who can explain scientific data in a way that is easy to understand and connect with the public, but communicators are lacking. It is also necessary to create a relationship (with somebody) to whom scientists can entrust dissemination of information to some degree.

Ms. Ando: If we limit the discussion to tritiated water, it is important to note that the senders of primary information is not trustworthy. In a situation where primary information is unreliable, a system of monitoring by a third-party organization is necessary, but this has not yet been done.

Part II : Live discussion

on "Social Consensus Building"

“How to build a social consensus on handling of tritiated water, or what exactly is needed in order to build a consensus.”

Dr. Yamaguchi: The root of the distrust is that various investigations are considered to be insufficient. So it is necessary to explain that they are being properly investigated. It comes important to consider the human rights of a few people with regard to continuing to store the treated water in place. It is necessary to consider the issues from multiple perspectives.

Dr. Chang: The Japanese government needs to establish a critical decision-making network. A key decision-making network (in the case of COVID-19 as well) needs to explain why, where, how, what, and when to do it. The Japanese government needs to explain why they discharge tritiated water into the sea and explain in detail how they will do it, but this has not yet been done. What and when should also be clarified. How it will affect Taiwan's marine environment is a matter of concern and the information should be provided to Taiwan.

Part II : Live discussion

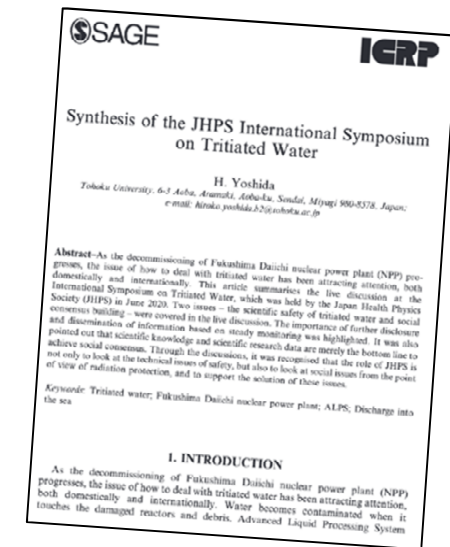
on "Social Consensus Building"

Dr. Chung: One of the important key words is consensus building, and its bottom line is acceptability and trust, (social) trust being the most important key word. Fukushima residents do not trust the government or other people, and they believe that the government is pursuing the interests of the government and not the interests of the Fukushima residents.

Mr.Komatsu: The number of people who is interested in the accident is decreasing even in local areas, and a small communication channel is being lost. ..only a limited number of people talk about tritium and decommissioning, the deviation between those who are interested in the issues and the general public becomes large. Not just disseminating information through the media, it is important for people to exchange information and opinions at the actual site. Disclosing traces of exhaustive discussions on various proposals, such as large tank storage and underground storage, will build trust, however, these information is not conveyed. We should create a place for discussion in the local community, even if it takes time.

Ms. Ando: “Any conclusions decided by someone else without our involvement “ are unacceptable. Before presenting conclusions, we need to have a place for discussion and take our time, going through the process little by little.

ICRP Annals, 2021
'Synthesis of the JHPS
International Symposium
on Tritiated Water'



KARP-JHPS Joint Symposium

Fukushima 10 years: Lessons Learned and Radiological Environmental Impact

March 11, 2021 (Thu) 14:00-18:35

Live Webinar using ZOOM (Simultaneous Interpretation)

ZOOM (Click Link or Check ID/PW)

Meeting ID : 972 0352 0655
PW : 336763



Korean Association for Radiation Protection (KARP) and Japan Health Physics Society (JHPS) hold Fukushima special symposium jointly. In the pure SCIENTIFIC View, the lessons learned and radiological environmental impact for last 10 years after Fukushima Nuclear Power Plant Accident are presented and discussed. This symposium is also opened for the media and the publics.

Time	Titles & Presenters
14:00-14:05	[Welcome message] Dr. Kyo-Youm Kim (KARP President)
	[Co-chairs] Dr. Makoto Hashimoto (JAEA), Prof. Hee Reyoung Kim (UNIST)
	1. Response to Radiological Disaster: Lessons Learned - Prof. Jaiki Lee (KARP iRSC Director)
	2. Large-scale Environmental Radiation Monitoring after the Fukushima Daiichi Nuclear Power Plant Accident - Dr. Satoshi Mikami (JAEA)
	3. Thyroid Dose Assessment after the Fukushima Daiichi Nuclear Power Plant Accident - Dr. Masahiro Hosoda (Hiroasaki Univ.)
14:05-17:00	4. Environmental Radioactivity Levels and Estimated Radiation Exposure Dose Rates among Residents before and after Returning Home to Areas near Fukushima Daiichi Nuclear Power Station - Prof. Yasuyuki Taira (Nagasaki Univ.)
	5. Radiophobia: Radiation and Reason - Prof. Keon Wook Kang (Seoul Nat. Univ. Hospital, ICRP)
	[Co-chairs] Dr. Hee-Seock Lee (KARP Vice President), Prof. Takeshi Iimoto (JHPS Vice President)
	[Panel Discussion] Lessons Learned of Fukushima Accident and Future Collaboration with KARP and JHPS (How to Share Information in Emergency Situation)
17:00-18:30	1) Prof. Eun Ok Han's talk 2) Dr. Masahiro Hosoda's talk
	From KARP: Prof. Eun Ok Han (KANS) Prof. Jaiki Lee, Prof. Keon Wook Kang From JHPS: Prof. Michiaki Kai (Oita Univ., NHS) Prof. Hiroko Yoshida (Tohoku Univ., IRPA) Dr. Masahiro Hosoda
18:30-18:35	[Closing message] Prof. Michiaki Kai (JHPS President)

Fukushima 10 Years, Special Workshop of KARP and JHPS

March 11, 2021

- Response to radiological disaster
- Environmental Monitoring
- Thyroid dose assessment
- Exposure dose among residents
- What happened in Korea for 10 years
- Radiophobia
- Panel discussion

In Korea, negative images of radiation were frequently and continuously conveyed to the public.



Lack of a comprehensive strategy and communication platform on how to communicate with the public about radiation and its risk is a problem



Current status of Fukushima Daiichi decommissioning project, treated water, and future collaboration among RP experts – JHPS and KARP

June 22, 2021


- Current status of decommissioning at Fukushima Daiichi NPS and disposal of ALPS treated water Junichi Matsumoto (TEPCO)
- Long term behavior of tritium activity concentration in coastal regions of Fukushima and the North Pacific Ocean since 1970s Michio Aoyama(University of Tsukuba)
- Korean **public's understanding** and perception to this issue Yong Hoon Jeong (KARP, KAIST)
- Panel discussion

KARP Summer Workshop

Joint KARP-JHPS-CSRП Workshop on "Perspectives of **Young Radiation Protection Professionals** through Some Issues Related to the Fukushima Accident"

August 27 2021,

- Post-Disaster Health Care: Implications of the 2011 Fukushima Nuclear Accident
Dr. Hisanori FUKUNAGA (Hokkaido Univ., Japan)
- Discharge of the waste water from Fukushima Daiichi NPP and the influence analysis
Dr. Zhiping LUO (CIAE, China)
- Public Acceptance of Nuclear Power since the Fukushima Accident
Dr. Jai Oan CHO (KAIST, Korea)
- Discussion/Closing Remarks All Participants/ KARP YSG Chair



Synthesis of the symposiums and workshops between KARP and JHPS on the issues of the Fukushima accident and ALPS treated water

- ✓ Further disclosure and dissemination of the information, both foreign and domestic, is necessary and important. It is important whether the senders of primary information is trustworthy.
- ✓ Scientific knowledge and scientific research data are important, but this is merely the bottom line.
- ✓ The majority of the public does not understand the safety of tritium. We need communicators who can explain scientific data in a way that is easy to understand and connect with the public.
- ✓ This is not a problem only for the fishermen, not just for Fukushima or the region. It is necessary to have an attitude of thinking of the problem as one's own, not someone else's.
- ✓ The consistent concern from KARP is the way the general public perceived the issue.

The way forward

- ✓ KARP and JHPS experts in radiation protection will work together to reduce the gap between experts and the general public and promote understanding on radiation and its risk.

Thank you very much for your attention.

